STATE OF IDAHO'S COMMENTS

DRAFT BIOLOGICAL OPINION ON OPERATION OF THE
FEDERAL COLUMBIA RIVER POWER SYSTEM
INCLUDING THE JUVENILE FISH TRANSPORTATION PROGRAM
AND THE BUREAU OF RECLAMATION'S 31 PROJECTS,
INCLUDING THE ENTIRE COLUMBIA BASIN PROJECT
(DATED JULY 27, 2000)
AND
DRAFT BASIN-WIDE SALMON RECOVERY STRATEGY
(FINAL DRAFT, ALL H PAPER) (DATED JULY 27, 2000)

PART I (SUPPLEMENT)
COMMENTS REGARDING EFFECTS OF BUREAU OF RECLAMATION OPERATIONS

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Submitted October 20, 2000

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The comments of the State of Idaho ("Idaho") dated September 29, 2000, indicated Idaho's intent to submit additional comments on specific portions of the Draft Biological Opinion ("BiOp"). The National Marine Fisheries Service ("NMFS") agreed to accept these additional comments through October 20, 2000. These comments consist of three parts: a supplement to Part I of the comments submitted on September 29 regarding the effects of Bureau of Reclamation operations, Part III addressing hydropower system measures, and Part IV addressing off-site mitigation. The State submits this document as supplemental comments to both the BiOp and the Conceptual Recovery Plan (formerly known as the "All H Paper").

PART I (SUPPLEMENT): COMMENTS REGARDING THE EFFECTS OF BUREAU OF RECLAMATION OPERATIONS

Idaho's September 29 comments emphasized that the analysis of the effects of Bureau of Reclamation ("Bureau") operations must focus on how reservoir storage operations affect streamflows during the salmon migration periods. Idaho explained that the BiOp erroneously examined the depletions associated with the release and use of stored water rather than the effect of actual reservoir storage operations. During a consultation with NMFS, a question arose regarding whether the "indirect" effects of Bureau operations include the exercise of certain natural flow rights under state water law. This question focused on the fact that the Bureau provides supplemental water to some lands that are primarily irrigated with natural flow rights. Although these natural flow rights are not within the ongoing management or control of the Bureau, NMFS representatives asked whether the depletions associated with these rights could be regarded as an indirect effect of the operations and maintenance of Bureau projects.

As an initial matter, this theory of indirect effects is not explained or used as a basis for analysis in the BiOp. If NMFS intends to treat the use of natural flow rights as an indirect effect of the Bureau action, then it must provide an explanation of its reasoning in the final document.

More fundamentally, the fact that Bureau project water is used as a supplemental water supply for certain lands does not mean that all irrigation on those lands constitutes an operational effect of the Bureau projects. These natural flow rights were acquired many decades ago, and legal or equitable title to these rights is vested in private water users. Moreover, the water used under these natural flow rights is not stored in Bureau reservoirs, and the water rights are in no sense "operated" by or within the discretion of the Bureau. Therefore, the exercise of these rights is not properly within the scope of the current consultation. *See Sierra Club v. Babbitt*, 65 F.3d 1502 (9th Cir. 1995) (No consultation is required on actions over which the federal agency has no continuing discretion).

The definition of the "effects of the action" contained in the Endangered Species Act ("ESA") regulations underscores this point:

> '*Effects of the action*' refers to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action, **that will be added to the environmental baseline.** The environmental baseline includes the past and

> present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process. . . .

50 C.F.R. § 402.02 (emphasis added). In this instance, the natural flow rights in question were granted decades ago and are clearly part of the environmental baseline.[1] Hence, they are not properly regarded as an effect of the action under consultation.

Treating natural flow rights as an indirect effect of Bureau operations is based on the hypothesis that, without supplemental water from Bureau operations, these rights would never have been exercised. The problem with this notion is that it plunges NMFS into a realm of speculation regarding what water rights would have been developed without the Bureau projects. Water use patterns may well have been different. Perhaps even more natural flow rights would have been developed absent the Bureau. It certainly cannot be fairly assumed that none of the natural flow rights on lands receiving supplemental water from Bureau projects would have been developed. NMFS has not undertaken any analysis to support suppositions regarding the connection between use of natural flow rights and supplemental water from Bureau projects.

There is no end to the type of speculation that such an approach to defining indirect effects would require. For instance, the inexpensive electrical power provided by the Federal Columbia River Power System ("FCRPS") has permitted a great deal of industrial and urban development in the Pacific Northwest, which in turn has had a wide range of impacts on salmon and steehead populations. Eliminating all hydropower generation from the FCRPS would produce catastrophic electricity shortages that would reverse much of the industrial and urban development of the region, with consequent benefits to the fish. Yet, considering these effects is clearly beyond the scope of the Section 7 analysis. The BiOp properly analyzes the reservoir and passage effects of the FCRPS reservoirs without attempting to sort out what "indirect" private development might somehow be associated with the federal hydropower system. The analysis of the streamflow effects of Bureau reservoirs should be addressed in a similar manner to the FCRPS. Idle speculation about what might have occurred if only the Bureau had not supplied supplemental water distracts the analysis from its proper focus on the actual impacts of Bureau reservoir operations.

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[1] Because the natural flow rights are part of the environmental baseline, it is not necessary to determine whether they constitute "interrelated or interdependent effects." The definitions for these terms are as follows:

> Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration.

50 C.F.R. § 402.02. Neither of these definitions applies here. The use of natural flow rights does not depend on Bureau operations for its justification; these rights would be available for appropriation regardless of Bureau actions. Moreover, diversion of natural flow rights has independent utility from the Bureau operations.

PART III: COMMENTS REGARDING HYDROPOWER SYSTEM MEASURES

This section focuses on the one and five year implementation planning schedules identified in the draft BiOp and assumes lower Snake River dams will be operational during this management timeframe. We address the entire life cycle of Snake River salmon and steelhead, with emphasis on manageable factors most significantly limiting survival and recovery. Idaho's goal for this time period is to provide optimal survival conditions for wild Snake River salmon and steelhead within the context of operational lower Snake River dams.

Reducing direct and delayed mortality associated with migration through the hydropower system is central to recovering wild salmon and steelhead in the Snake River. Idaho recommends interim strategies that are consistent with the "normative" river approach while remaining balanced with other societal interests. This approach requires a commitment to making the river a friendlier environment for juvenile and adult migration, and then allowing as many fish as ecologically prudent to remain in the river to migrate naturally.

Section 9.6.1.1.7, Page 9-39, Enhanced Operation and Maintenance of Fish Passage Facilities: Idaho agrees with the BiOp's statement at page 9-39 that "Fish passage facilities for both juvenile and adult salmon and steelhead are the backbone of a long-term engineering and technical commitment to fish passage survival." We also agree with NMFS' assessment that the budget of the U.S. Army Corps of Engineers ("Corps") for operations and maintenance of fish passage facilities has remained nearly static and has failed to meet growing needs.

The Corps' current budget is inadequate to address the needed repairs. We cannot overstate our concern that the failure of a single aging structure or machine could have catastrophic consequences for the listed species. The auxiliary water pumps for the fish ladders are a case in point. Many of these pumps, which provide the water needed to keep the adult fish ladders working, are quite old. For instance, electric motors drive 2,500 cfs fish pumps. They are almost fifty years old, and nothing like them has been built for over 20 years. Spare parts for these and other motors are becoming difficult and, in some cases, impossible to find. The impacts of a pump failure would be severe. Yet, the Corps has not secured the funding needed to replace these pumps. The auxiliary pumps are only one example of a broader problem with funding for long-deferred operations and maintenance needs. This problem deserves a higher priority within the Corps' budget process.

The Corps' budget is also inadequate to meet the growing list of needed improvements. The BiOp contains several dozen specific items, which range from removable spillway weirs to adult fish ladder improvements to minimum gap runners. These structures and facilities will require a substantial increase in the level of funding if they are to be installed soon enough to assist in the region's efforts to arrest the decline of the listed stocks. Our experience has been that new structures and facilities can be delayed literally for years, even decades, due to funding and procedural obstacles. The long-delayed improvements to the juvenile fish passage facilities at Lower Granite Dam illustrate this point. It is imperative that NMFS, the Corps and the Bonneville Power Administration ("BPA") work together with the region to expedite funding and implementation of needed improvements to the mainstem dams.

Section 9.6.1.2.3, Page 9-47, Flood Control Operations: Idaho strongly endorses NMFS' call for a reassessment of flood control operations. Flood control management should be modified to reduce the level of responsibility for Brownlee and Dworshak projects (i.e., allow these reservoirs to remain as full as possible until smolt migration begins). Flood control operations should be managed so that releases coincide as closely as possible with fish migration (i.e., reserve as much of the flood control draft as possible until after April 3). Flood control operations should be managed in real-time to optimize benefits to migrating fish while meeting minimum flood control responsibilities. These specific actions should accompany a general review of system flood control operations through which the Corps determines whether current flood control operations are based on outdated criteria and methods. This action should have a high priority.

The BiOp's discussion of flood control misses an important aspect of the issue—namely, the effect of the current estimate of the standard project flood (maximum expected flood) on the construction of fish passage facilities at the lower Snake River projects. The standard project flood for the lower Snake River projects is 800 kcfs. The largest outflow in the past 30 years was 310 kcfs. Upstream storage developed since the standard project flood estimate was calculated renders that figure obsolete. Yet, the Corps has not been willing to modify this estimate. This is an important issue because lowering the estimate of the standard project flood could substantially reduce the cost of installing removable spillway weirs at the projects and allow them to be permanent rather than removable structures. Reassessment of the standard project flood estimate should be coordinated with reassessment of flood control operations at Dworshak and Brownlee reservoirs designed to enhance flows during the spring migration period.

Sections 9.6.1.2.3 through 9.6.1.2.4, Pages 9-45 through 9-49, Snake River Reservoir Operations: As an interim measure, the action agencies should utilize flood control releases and other available[2] storage from Dworshak and Brownlee reservoirs as necessary to achieve a flow objective of 100 kcfs at Lower Granite Dam during the spring migration period when migrants are present. This measure is premised on shifts in flood control operations at Brownlee and Dworshak. The action agencies also should manage existing flow augmentation volumes (approximately 1.9 maf) for summer migrants subordinate to flow augmentation operations during the spring migration period.[3] Finally, they should use Brownlee storage first and Dworshak storage later in the summer migration season to moderate water temperature in the

[2] Determined annually based on specific reservoir management measures contained in the RPA.

[3] The draft BiOp prioritizes flow augmentation for summer migrants at the expense of spring migrants. Available data does not support this priority. 1) Juveniles from three of the four Snake River ESUs migrate during spring (spring/summer chinook, sockeye and steelhead), whereas juveniles from only one Snake River ESU migrate during summer (fall chinook). 2) Based on survival and abundance trends, Snake River fall chinook are less imperiled than Snake River spring/summer chinook, steelhead and sockeye, particularly at the population level. 3) There is a statistically significant, positive relationship between flow and spawner-to-spawner ratios for wild Snake River spring/summer chinook (IDFG 2000; State of Idaho 2000; NMFS 2000), whereas this relationship has not been evaluated for fall chinook. Similarly, Snake River steelhead SARs are correlated with water travel time (Marmorek et al. 1998; NMFS 2000). 4) NMFS bases their summer priority on reservoir reach survival studies that use timed releases of hatchery fish to evaluate survival through a section of the river based on various flows. This approach has several important design and analysis flaws (see Idaho's Comments, September 29, 2000, Part I, Exhibit 4) and also cannot address the cumulative effect of delayed migration, altered timing of ocean entry, and loss of energy reserves that can only be encompassed through evaluations of adult returns (IDFG 1999; Dreher et al. 2000).

lower Snake River, reduce adverse impacts to juvenile fall chinook rearing in the lower Clearwater River, and extend recreational benefits on Dworshak Reservoir.

The BiOp should provide that Brownlee and Dworshak reservoirs will be managed with priority assigned to refill by June 20, subject to flow augmentation operations in the lower Snake River during the spring migration period, as described above.

Over the long-term, NMFS' objective should be to phase out the flow objective approach at dams for both spring and summer migrants as long-term measures are developed to address water velocity and temperature concerns.

The actions agencies should also develop Integrated Rule Curves (IRC) for operations at federal reservoirs. The IRCs should be used as a management tool to optimize the beneficial uses of flood control, irrigation, recreation, water quality and quantity, resident fish and wildlife and anadromous fish.

Section 9.6.1.2.3, Page 9-47, Mitigating Resident Fish Effects of Dworshak Operations: Flood control releases at Dworshak Dam can have significant effects on the reservoir fishery. For instance, flood control releases in 1997 resulted in a large portion of the reservoir's population of kokanee being washed into the Clearwater River. Idaho supports the installation of a strobe light array in front of the powerhouse as well as other behavioral guidance facilities at Dworshak Dam to reduce the number of resident fish flushed out of the reservoir. Research has indicated that strobe lights cause fish to avoid the powerhouse area and, thereby, avoid entrainment. This measure should be funded out of the resident fish or project operations budget, not the Columbia River Fish Mitigation Fund.

Section 9.6.1.2.6, Page 9-54, Dworshak Reservoir Operations: Dworshak reservoir releases should occur after juvenile fall chinook in the Clearwater River have reached a size that ensures they are ready to migrate. NMFS should continue to use size criteria—and should consider additional criteria indicating readiness to migrate—as decision factors in determining when to call for flow augmentation from the Dworshak Project.

Section 9.6.1.2.6, Page 9-54, Dworshak Hatchery and Reservoir Operations: The Corps should provide an additional water supply for the Dworshak Hatchery through an additional or enlarged line from the reservoir. Much of the hatchery water supply currently comes from the North Fork of the Clearwater River, which is affected by cold water releases from Dworshak Dam. This cold water tends to retard the growth of the fish being reared at the hatchery. Small steelhead tend to have lower survival and to residualize in the lower Snake River reservoirs, which can lead to increased predation on subyearling fall chinook. This problem can be avoided by installing a new or enlarged line from the reservoir and by using water heaters to ensure that the water supplied to the hatchery is the proper temperature.

Section 9.6.1.3, Page 9-58, Juvenile Fish Transportation: All smolts collected at Lower Granite, Little Goose, and Lower Monumental dams should be transported during the spring migration period, except as required for research. This recommendation assumes, and is contingent upon, the implementation of the spill recommendations set forth in comments on

Section 9.6.1.4, page 9-64. Smolt transportation from McNary Dam should be implemented during the summer migration period. Every effort should be made to reduce holding time of fish during all phases of collection and transportation operations.

Section 9.6.1.3.3, Page 9-61, Separation of Chinook and Steelhead During Transport: Idaho supports the installation of facilities for separating smaller salmon from larger steelhead and hatchery salmon. The Lower Granite Juvenile Fish Facility does not have size separation. As the new size separation technology currently under development becomes available, it should be installed promptly at Lower Granite. Size separators at Little Goose, Lower Monumental, and McNary should then be retrofitted with the new size separators, with priority assigned to Little Goose.

Section 9.6.1.3.3, Page 9-62, Release of Transported Fish from the New Bonneville Second Powerhouse Juvenile Bypass Outfall,Timing of Juvenile Releases: Evaluating strategies to increase the survival of smolts after release is an important undertaking. NMFS should remain aware of existing research suggesting that holding fish during their migration increases their stress levels. The stress of prolonged holding could counteract the benefits of strategies that require holding the fish for substantial periods in order to time their release with tides or other factors.

Section 9.6.1.3.4, Page 9-62, Adult PIT Tag Detectors: Idaho supports the installation of adult PIT tag detectors at projects that do not currently have them.

Section 9.6.1.3.4, Page 9-63, Improvements to the Transportation System: Among the improvements the Corps should consider are: replacing the two World War II-vintage fish barges, developing smaller barges or self-propelled vessels to extend the barging season, and replacing separators with better facilities as they are developed. The Corps may also want to consider purchasing new trucks that are not corroded by the saline water used to transport smolts.

Section 9.6.1.4, Page 9-64, Juvenile Fish Passage Strategy, Spillway Passage: NMFS is correct that spillway passage is the preferred passage method for juvenile fish. The project operations should be based on the principle of maximizing the survival of those fish that migrate in-river. This does not mean, however, that current spillway passage is ideal. As discussed below, NMFS should call for improvements in spillway operations, including but not limited to installation of new deflectors, removable spillway weirs, and training walls.

The mainstem projects should be operated to maximize spillway passage at all dams for all spring migrants. Specifically, the action agencies should implement 24-hour spill to 120/125 percent total dissolved gas (TDG) at all mainstem dams during the spring migration period except during drought conditions at collector projects. The action agencies should reduce the frequency and magnitude of gas supersaturation by dam modification (modified spillway and stilling basins, *etc*.). For summer migrants, the action agencies should develop and implement spill tests to determine if overall survival can be improved by providing a safer dam passage route for in-river migrants. The action agencies should also monitor and evaluate direct and delayed biological effects of spill programs on juveniles and adults. Strong adult returns in 2001

are anticipated. This gives the agencies a good opportunity to use returning adults to evaluate effects of full summer spill program on adult passage and survival.

Section 9.6.1.4, Page 9-64, Juvenile Fish Passage Strategy, Surface Bypass and Surface Collection: The Corps should aggressively pursue surface bypass systems, including the behavioral guidance systems ("BGS") and removable spillway weirs ("RSW"). Both concepts are promising. They offer an unusual opportunity to improve project survival while at the same time curtailing spill. The RSW approach will likely provide better conditions than current spillway passage because it eliminates the fifty feet of pressure and high velocity spill plume that the fish currently experience. RSWs could also reduce fallback and gas supersaturation problems.

Tests of surface bypass collection at Lower Granite indicate that fish guidance efficiencies of these facilities is not as high as had been hoped. Testing should continue, but it now appears that surface bypass collection may not solve passage problems at the mainstem dams. This should lead to additional emphasis on the BGS/RSW approach.

The long-term strategy for fish passage should adopt a normative approach that addresses water velocity, temperature and dam passage issues by striving to re-create natural ecosystem and fish behavioral processes as best possible within societal constraints. Examples of such a approach include: (1) developing fish guidance systems that allow unimpeded fish movement in a non-stressful setting (e.g., strobe, acoustic and velocity technologies); (2) continuing to pursue surface-oriented spillway passage technologies that provide for at least 80% passage of smolts via spillways; and (3) investigating technologies to improve reservoir passage conditions, such as an engineered migration channel beside the river and in-river venturi structures to enhance water velocity. These technologies should be explored and their biological benefits, risks and uncertainties identified to inform long-term recovery decisions.

Section 9.6.1.4, Page 9-64, Turbine Passage: A Minimum Gap Runner ("MGR") is designed to eliminate almost all gaps fish could enter when the hydropower generating turbine is operating. This is done by making the blades longer than those of traditional Kaplan blades and milling out notches in the hub for the longer corners to fit into when the blades are tilted at a steep angle. The MGR is an efficient blade for power generation.

A conceptual design for MGRs was developed by the Turbine Working Group, a regional group of technical experts working together on the Advanced Hydro Turbine System Program (AHTS). This group was created in 1994 by the U.S. Dept. of Energy (DOE), Electric Power Research Institute (EPRI), and the Hydropower Research Foundation. The Corps Hydroelectric Design Center developed the design requirements and the design was adopted and incorporated into the powerhouse major rehabilitation program by the Corps Portland District. Voith Hydro built the prototype under contract to the Corps.

Under present conditions, estimates of fish survival through the turbine passage route vary from 89 to 94 percent. There are predictions of 1 percent to 4 percent improvement of survival. Even a 1 percent increase multiplied over eight Columbia-Snake dams would be

significant. At a 4 percent improvement, survival rates with MGRs could range from 93 to 98 percent. These figures are only for direct mortality and survival.

The first MGR installed at a Corps project on the Columbia-Snake system is at Bonneville's first powerhouse. The new design MGRs cost more than a standard design, but in some cases increased power generation may offset some of the additional costs. Testing of the MGR at Bonneville Dam began November 11, 1999, and concluded January 1, 2000. Forty fish per day were released into the new MGR turbine chamber, forty into one of the old turbine chambers, and forty into the tailrace that did not go through a turbine. The study produced twenty-four survival estimates, one for each of the two turbines at four operating conditions with three release points. Fish were released to pass near the hub, at the mid-blade region, and near the blade tip. The fish were picked up in the water after the test and put into a tank for 48 hours to check for delayed mortality.

Preliminary analyses indicate that fish passed through the MGR had better survival overall than through the conventional unit. Overall injury rates among turbine-passed fish were low for both units, 1.5 percent and 2.5 percent for the MGR and Kaplan unit, respectively. Survival rates of fish passed near the hub were high (97 percent or greater) for both units. Survival rates of fish passed through the mid-blade region ranged from 95 to 97 percent and did not differ between units. At all four power levels, the MGR showed better survival than the conventional units for fish that passed near the blade tip. Survivals for blade tip-released fish ranged from 90.8 to 95.6 percent for the conventional Kaplan and from 93.8 percent to 97.5 percent for the MGR.

The Turbine Passage Survival Program is a three-year program to investigate short-term and long-term improvements to juvenile passage through the turbine. The entire turbine environment is being studied. The project study plan was developed in coordination with related activities underway by other organizations (Public Utility Districts, DOE, Electric Power Research Institute, and BPA) to eliminate duplication, reduce cost and enhance the effectiveness of the Corps' turbine program.

Idaho strongly supports continued research and testing of MGR turbines, with the goal of installation at all dams, including the four lower Snake River dam projects. Congress should continue to fund this program. The cost of replacing existing turbines with MGRs should not be charged to the Columbia River Fish Mitigation Program.

Section 9.6.1.4.2, Page 66, John Day Dam: John Day Dam is the only Corps mainstem dam that has skeleton bays. A behavioral guidance system could be constructed to lead to a new bypass channel through one of the skeleton bays. NMFS should examine the feasibility and benefits of such a system.

Section 9.6.1.4.2, Page 68, Lower Monumental Dam: Idaho supports modifying the Lower Monumental bypass outfall. We recognize that implementation of BGS/RSW will take at least several years. Therefore, it is important to continue to improve aspects of the existing system where benefits can be gained in the interim.

Section 9.6.1.4.4, Page 9-75, Turbine Unit Operations: Operating turbines within one percent of peak efficiency maximizes fish survival, makes more efficient use of water for power generation, and reduces wear and tear on the turbines. NMFS correctly directs the Corps and the BPA to operate the turbines for optimum fish survival.

Section 9.6.1.4.5, Page 9-80, McNary Dam: Although the debris problem at McNary Dam has been partially resolved, additional work is needed. Debris on the screens and in other parts of the juvenile collection system is a particular concern when fish are being transported at the project. Clogs in loading lines have caused problems and some fish loss. The rotary dewatering screen concept should be developed to determine whether it would be effective in addressing this problem. A debris boom should also be constructed at McNary Dam.

Section 9.6.1.4.5, Page 9-81, Extended Length Screens at Lower Monumental Dam: Idaho is not convinced that extended length screens should be installed at Lower Monumental Dam. Installation of extended length screens should be deferred pending additional studies of their potentially deleterious effects on fish passage, including impingement of lamprey.

Section 9.6.1.4.5, Page 9-81, Lower Granite Dam: Idaho supports continued testing of the RSW facility at Lower Granite Dam. This testing should not be permitted to degrade conditions for in-river migrating fish.

Modification of the Lower Granite Dam fish facility should be a high priority. The facilities should be upgraded to a standard equivalent to the facilities at Little Goose Dam. The modification should include converting the 10-inch orifices from the bulkhead slots to the collection tunnel into 12-inch orifices. The collection tunnel should be widened from 6 feet to 9 feet so the plumes from the orifices do not hit the far side wall. The tunnel should be mined out to daylight though the powerhouse wall to eliminate the 65-foot downwell and pressurized pipe. The pressured pipe that now goes to the juvenile fish collection facility should be replaced with a non-pressurized flume similar to the one at Little Goose Dam. A size separator should be installed so wild chinook and sockeye could be separated from larger steelhead and hatchery chinook. The raceways should be modified to provide better distribution of inflow and reduce raceway jumping. Idaho is particularly concerned that the facilities cause increased stress and delayed mortality of smolts. Because Lower Granite Dam is the first dam encountered by the migrating fish and because the entire migration must pass this project, these improvements should be moved near the top of the priority list.

Section 9.6.1.4.6, Page 9-82, Spillway Passage Research: This action should be given a relatively low priority. If studies are conducted, they should focus on adult returns.

Section 9.6.1.4.6, Page 9-83, High Volume Outfalls: The Corps should plan for high-volume outfalls, particularly at the Lower Columbia River dams. These outfalls are likely to be necessary to avoid high-volume dewatering.

Section 9.6.1.6, Page 9-90, Adult Passage: Idaho agrees with NMFS' recommendations to improve adult migration conditions set forth in this section. Idaho has two specific comments. First, the upstream exit of the adult fish ladder at the Bonneville Second Powerhouse extends

into the reservoir above the project. This extension appears to be effective at reducing adult fallback at Bonneville Dam. The Corps should investigate the benefits of extending the ladders at other projects and implement the ladder extensions if benefits are shown. An extended adult fish ladder may be particularly valuable at McNary Dam. Second, the BiOp at page 9-94 correctly emphasizes the need to improve adult fish counting accuracy. NMFS should call for visual – as opposed to video – counts. The video counts tend to increase counting error.

Section 9.6.1.6.2, Page 9-93, Adult Fallback at Ice Harbor and McNary Juvenile Fish Facilities: The Corps should install a denil fish ladder to permit adults to escape from these facilities with minimal handling.

Section 9.6.1.6.4, Page 9-95, Reliability Enhancement: As noted above, this measure identifies a real problem. Pumps, valves, and other components of the fish facilities are getting old and wearing out. The Corps needs to be ready to replace these facilities *before* they break. The action agencies need to allocate substantial funding to rebuild fishway pumps. If one pump fails, then the other two would have to work harder and be at greater risk of failure. Any failure by all pumps could be catastrophic.

Section 9.6.1.6, Page 9-96, The Dalles East Ladder: The east ladder at The Dalles was designed with a gravity auxiliary water supply. North Wasco Public Utility District filed for a FERC permit and installed a turbine on the water supply. An alternative source of water is needed to avoid problems in the event the turbine goes down during the fish passage season.

Section 9.6.1.7, Page 9-98, Water Quality: Idaho supports the construction of structural improvements to the mainstem projects to reduce TDG levels during the migration periods. These structures will assist the Corps in achieving the long-term water quality goal of 110 percent TDG while permitting optimum in-river migration conditions to be provided through spill and other measures. We agree strongly with the statement at page 9-98 that the long-term TDG goal cannot be met without physical modifications to the dams *beyond those that are presently underway*. Therefore, NMFS should give a high priority to installing state-of-the-art spillway deflectors and other structures needed to reduce TDG levels resulting from spill.

The radius design spillway deflectors installed at Ice Harbor Dam in the late 1990s reflect the current state-of-the-art design and are a substantial improvement over the older flat spillway deflectors. With the radius design, water coming down the face of the spillway is more gently turned to skate across the surface of the tailrace. This reduces the deep entrainment of gases and, thus, lowers TDG levels. The position of the deflectors is also important. If they are too low, they permit water to plunge to depth. If they are too high, air can be pulled under the shooting flow, causing more supersaturation. Detailed hydraulic modeling was conducted at Ice Harbor Dam to ensure that the deflectors were constructed in the correct position to minimize TDG.

The improvements in deflector design developed at Ice Harbor Dam should be incorporated into new deflectors at the other mainstem projects. This will mean continuing detailed studies to convert the old-style deflectors to the new radius design deflectors.

NMFS should also call for the construction of deflectors in the end bays at dams that do not currently have them. Many of the dams do not have deflectors in one or two spillway bays at either end of the spillway. Studies at dams without deflectors in the end bays show that water with entrained air from the non-deflector bays is drawn under the outflow of the deflector bays. The result is that non-deflector bays cause conditions that reduce the effectiveness of the deflectors in adjacent bays, thus reducing the overall level of TDG control at the projects. A decision not to construct end bay deflectors was made in the 1970s because it was thought that end bay deflectors might adversely affect passage conditions at the adult fish ladder entrances. Since then, careful hydraulic modeling has indicated that installing training walls between the end bays and the rest of the spillway and locating the deflector at a slightly deeper level provides good adult passage conditions. Follow-up studies with radio tagged adult salmon and steelhead have confirmed that deflectors in end bays do not interfere with adult passage.

It is important to expedite the installation of deflectors in all spillway bays that do not currently have them and to modify the old deflectors to the current design. Idaho's support for new deflectors applies to all dams where they are not currently installed. In addition to this general recommendation, Idaho has the following specific observations:

- Page 9-67, McNary Dam: The focus at McNary Dam should be on spillway passage. The spillway deflectors are the old-style flat design. They should be replaced with radius design deflectors. The end bays should be equipped with deflectors. Results of model studies at Ice Harbor Dam indicate that gas control at McNary Dam can be increased.

- Page 9-68, Lower Monumental Dam: The spillway deflectors at Lower Monumental Dam were constructed in the 1970s and are the flat design. They should be replaced with the current design. Guide or training walls may also be necessary. The absence of deflectors in the end bays causes an erosion problem in the stilling basin, which provides an additional reason to install new deflectors there. The elevation of the deflectors should also be modified.

- Page 9-68, Little Goose Dam: Like Lower Monumental Dam, Little Goose Dam has only six old-style deflectors. They should be modified and end bay deflectors should be installed.

- Page 9-71, Lower Granite Dam: High levels of spill at Lower Granite Dam can affect adult fish passage. End bay deflectors would help address this problem.

General Comment: The BiOp calls for intensive research of literally dozens of different aspects of juvenile and adult fish passage at the mainstem projects. It is essential, as this massive research program goes forward, that the action agencies to not degrade the quality of migration conditions for in-river migrating fish (*e.g.*, water velocity, temperature, spillway passage, etc.).

PART IV: COMMENTS REGARDING OFF-SITE MITIGATION MEASURES

I. Habitat Measures (Section 9.6.2)

A. Introduction: Off-Site Mitigation In Habitat Sector Provides A Useful Tool, Given Proper Bounds.

The State of Idaho endorses the BiOp's proposal (which incorporates the All H plan) to undertake watershed restoration efforts to benefit listed fish. The goals embodied in this proposal can and should be obtained. The question is: what is the best approach?

While Idaho endorses NMFS' stated intention to seek habitat improvements, Idaho questions the manner in which NMFS is looking to the non-hydro sectors for hydro mitigation. Under NMFS' proposal, the hydro action agencies are empowered to become "lead managers" in the other Hs, even in the non-federal arena. Idaho is concerned that NMFS' proposed actions would duplicate existing state and local programs and undermine state and local authorities.

Idaho is also concerned that NMFS may have unrealistic expectations about the benefits that will actually accrue to the salmon from habitat improvements and about the ability to measure such benefits. NMFS appears to be looking for a large percentage of the salmon "solution" to occur in a sector that, at least in Idaho, is at most an insignificant factor in the decline of the species. Idaho currently has about 3,700 total miles of spawning and/or rearing habitat for spring/summer chinook, which represents 62 percent of predevelopment miles. Approximately 30 percent of accessible habitat is located within boundaries of designated wilderness or wild and scenic river corridors, and has been protected from development. Adult escapements into accessible habitat have declined dramatically in recent decades, regardless of the relative quality of the habitat. In contrast, the productivity or survival of juvenile salmon and steelhead in these freshwater habitats has declined only slightly in the same timeframe.

The relatively good condition of spawning and rearing habitat in Idaho has two key policy implications for the All-H Paper. First, it is unlikely that major improvements in survival at the ESU level can be gained through habitat-related actions. Second, existing habitat problems in Idaho are largely confined to specific geographical areas and, therefore, can be addressed through local watershed restoration projects that target specific concerns. Therefore, NMFS should limit the role of federal agencies in the habitat sector and should carefully consider what benefits are reasonable to expect from actions taken in the habitat sector.

To the extent off-mitigation measures are pursued in the habitat sector, they should be pursued with the following understanding:

- The BiOp does not expand the authority of the hydro action agencies;
- The hydro action agencies are not the best-suited leaders for habitat actions—but, rather, NMFS should look to ongoing efforts by the states and to collaborative processes involving states, tribes, and others;
- It is appropriate for BPA to fund habitat actions;

- The benefits from implementing habitat actions will be difficult or impossible to measure biologically and thus the standards for judging their success should be programmatic rather than based on specific fish survival or abundance criteria that are difficult or impossible to link to specific habitat actions; and

- To proceed fairly and to get full cooperation from nonfederal entities, especially private landowners, there need to be some assurances given that undertaking certain habitat improvements will satisfy the requirements of the Endangered Species Act and Clean Water Act.

B. Implementation Role Of Federal Agencies Should Be Limited.

The most effective strategy for securing habitat improvements is to involve landowners and other stakeholders in watershed conservation and restoration efforts. These efforts should be locally-based and should ensure that affected landowners develop a sense of ownership in the salmon recovery effort. This will require innovation and flexibility on the part of the federal agencies.

The need for a local approach stems from the fact that there are significant differences in the geomorphic and hydrologic conditions affecting habitat in different parts of the basin. For instance, a measure that is appropriate for activities occurring in the granitic soils of the Central Idaho batholith may not be necessary as applied to the volcanic soils of the Columbia Plateau and vice versa. Moreover, habitat degradation and non-point source pollution from agricultural lands are not environmental problems that are readily addressed through traditional top-down permit processes. The support of the affected communities is essential to the success of watershed restoration efforts, and this can only be achieved through locally-based strategies. A one-size-fits-all approach will waste money and fail to address the most pressing problems.

Idaho is willing to put a great deal of effort into habitat programs that are:

- Efficient, pragmatic, and non-bureaucratic;

- Dedicated to local involvement;

- Protective of property interests;

- Responsive to site-specific conditions in different watersheds; and

- Built upon—rather than duplicative of—existing state and local efforts.

Idaho's position matches Option 2 of the All H Paper. This option calls for coordinated habitat protection plans and calls upon state and local governments to "ensure effective regulations and programs that avoid further habitat degradation on nonfederal lands."

1. Idaho Habitat Improvement Processes Are Underway—Lemhi Basin Example.

Idaho has in place the basic elements for an effective habitat restoration effort. These elements include traditional regulatory programs and more voluntary project-oriented programs. A key advantage of these programs is that they have already gained a level of acceptance among the regulated communities and landowners. They provide a point of contact with the people who actually manage lands and waters. In its comments on the All H Paper, Idaho has explained in detail numerous state programs aimed at watershed restoration. The following discussion expands upon the state and collaborative processes ongoing in one particular watershed: the Lemhi River Basin.

The BiOp, through the All H Paper, offers the Lemhi Basin as a priority sub-basin for off-site mitigation habitat actions. The Lemhi Basin serves as an excellent example of an area where watershed restoration efforts are best accomplished through locally-based collaborative processes and not top-down federally-managed processes. The Lemhi Basin has both a state fisheries agency and a coalition-type organization with programs in place and underway to accomplish needed habitat improvements. Additional studies and layers of bureaucracy will not aid these programs and may, in fact, impede them.

The Idaho Department of Fish and Game ("IDFG") office in Salmon, Idaho, has expertise in and monitoring capabilities of local fishery needs. The branch office has the second largest fish screen building shop in the Pacific Northwest, second only to the shop in John Day, Oregon.

The Model Watershed Project is a coalition of water users, tribes, and state and federal agencies in the region. The Model Watershed has succeeded in gaining the support of agricultural communities in Lemhi and Custer counties, Idaho, and in producing real benefits for salmon and steelhead. These communities have often felt alienated by endangered species issues and federal environmental initiatives generally. Yet, working through the Model Watershed Project, local landowners have implemented a number of measures to address habitat problems. Local, state, and federal agencies, as well as Indian tribes, have all been productively engaged in the effort and are members of the Model Watershed's Technical Team.

The Model Watershed Project and IDFG (as well as other state resource agencies, including Idaho Department of Water Resources and Idaho Department of Environmental Quality) have worked to improve fish habitat in the Lemhi Basin through a variety of projects, including: installing fish screens; fencing off spawning areas from grazing and other activities; removing barriers to fish passage; conserving water by modifying irrigation practices; replacing outdated headgates; improving and/or consolidating diversions; collecting and analyzing spawning, rearing, and migrating data of listed salmonids as well as temperature and quantity data of water flows; stabilizing and re-vegetating stream banks; and reconnecting historic links to areas presently inaccessible to anadromous fish.

The programs of IDFG and Model Watershed have been and continue to be extremely important to fish recovery in the region. For example, IDFG's fish screen program has installed new screens or replaced outdated screens for 70 diversions in the Lemhi Basin since 1993 when the program was reorganized and became fully funded. Additionally, IDFG has installed new

screens on 21 pumps in the Lemhi Basin. The result is that 100% of presently available anadromous habitat in the Lemhi River and its tributaries is screened. As new habitat becomes available through efforts to reconnect historically-used tributaries, the new habitat will also be screened. Canyon Creek and Agency Creek are examples of two tributaries to the Lemhi River that are now reconnected and screened for safe use by resident and anadromous fish. Likewise, Model Watershed Project is responsible for installing over 30 miles of fence and eliminating 19 irrigation diversions in the Lemhi Basin. These projects are just a few of many efforts that are ongoing in the Lemhi River Basin, as well as in the nearby Pahsimeroi and East Fork Salmon River Basins.

A collaborative effort that both IDFG and the Model Watershed helped bring about during this past irrigation season in light of extremely dry conditions was to gain support from the irrigators to provide flushing instream flows for fish. The Lemhi Irrigation District, Water District 74, Idaho Department of Water Resources, IDFG, and the Model Watershed Project all signed a Memorandum of Understanding ("MOU") to ensure sufficient water flows for salmonids in the lower reaches of the Lemhi River. This stretch of river sometimes faces critical low-flow events related to the timing and magnitude of snowpack quantity and quality, snowmelt runoff, temperature, rainfall, and irrigation withdrawals (1986 Lemhi River Habitat Improvement Study).[4] Throughout the 2000 irrigation season, the MOU provided for an instream flow to aid downstream migration of juvenile salmonids as well as "fish flushes" to aid upstream migration of adult salmonids. The MOU directed IDFG to carefully monitor water flows and fish to determine when water flushes were needed for fish passage. Finally, the MOU embodied a commitment of the water users and state resource agencies in the Lemhi Valley to develop a long-term agreement addressing flows in the lower Lemhi River for passage of anadromous fish.

While the MOU was certainly not an end-all solution for the flow and habitat issues in the Basin, it offered a remedy for this year's low flow issues and, more importantly, a workable proposal to address the ongoing biological needs of salmonids in the Basin for future years. Low flows in the Lemhi Basin are not a new phenomenon. The Lemhi River has no significant water storage facilities and, therefore, flows are dependent almost entirely on what nature provides in the way of snowmelt runoff and summer rainstorms. Irrigation has helped serve to extend flows by diverting spring flood flows, which then results in enhanced late summer flows. Irrigators have worked cooperatively with IDFG and the Model Watershed throughout the Lemhi Basin and are essential players to any future plans to ensure adequate fish flows and good riparian health.

The more habitat actions incorporate local development and acceptance, the higher the likelihood they will be successful. For this reason, state agencies and local entities such as soil conservation districts and the Model Watershed Project in the Lemhi Basin should be in the lead.

[4] Lemhi River Habitat Improvement Study, Dennis E. Dorratcaque for U.S. Department of Energy, Bonneville Power Administration, Division of Fish and Wildlife, February, 1986.

2. State Water Law Mechanisms Provide The Most Effective Tool For Increasing Tributary Flows.

The BiOp suggests at page 9-111 that BPA should investigate innovative ways to increase tributary flows, such as by developing a water brokerage entity. Idaho firmly believes that such a program should be under state control. In fact, existing state water banking systems provide the most effective tool for securing instream flows. Idaho has confidence in its existing legal infrastructure on the state and local level to accomplish these ends, and it is essential that the Federal Caucus avoid a top-down funding approach in Idaho or it will not succeed.

Idaho acknowledges the federal need for funding accountability, but stresses that states must retain the ability to choose and implement projects relating to habitat restoration and, in particular, water resources.

3. What Does This Leave For The Federal Government?

Federal agencies should utilize existing state, tribal and local programs to develop specific actions, timetables, and basin-wide expectations. Federal agencies can provide effective financial and technical support to the local entities that run watershed restoration programs. Federal agencies can also help expedite needed permits or perhaps delegate some permitting authority to states. Finally, the action agencies can assist with monitoring and evaluation of programs.

C. Performance Standards Should Be Programmatic, Not Biological.

Performance standards which measure success in meeting goals and objectives for species recovery are a useful tool to provide both feedback on the utility of such measures in addition to providing accountability in the process.

Performance standards will allow the region to move forward with specific strategies and actions, in addition to measuring success and achieving the desired environmental and biological improvements. Three criteria can ensure that performance standards are used appropriately:

- Performance standards must be grounded in the best available science.
- Performance standards must be reasonably attainable.
- Performance standards must be implemented in a manner that coordinates the short-, mid- and long-term actions that are necessary to improve overall salmon recovery.

Idaho is keenly aware of the importance performance standards will play in the proposed recovery strategy. However, the state has the following general concerns:

First, provided that performance standards are fairly calibrated and reasonably attainable, the failure to attain one set of performance standards within one of the four H's should not unfairly burden another H in which the standards have been achieved. For example, in Idaho's

key anadromous areas in the Salmon and Clearwater Basins, performance standards aimed at habitat improvement, *e.g.*, diversion screening, barrier removal, can be reasonably achieved. However, a breakdown in the region's efforts to achieve reform in the hatchery or harvest area should not unduly increase the pressure upon efforts already achieved in habitat improvement or indicate the need for additional standards or effort in the habitat sector.

Second, Idaho is mindful that NMFS' overall objective is increased adult returns of all of the listed ESU's. However, it is quite possible that if the appropriate habitat performance standards are achieved in one central geographical area, there may be no impact on returning adult numbers, due to other factors. For example, habitat improvement measured in the Salmon and Clearwater Basins of Idaho could very well be achieved and indeed exceeded, only to have another factor impact the success of adult returns, such as the depredation caused by the Caspian Tern population in the Columbia River estuary limiting or decreasing the success of adult survival and adult returns.

In sum, the standards for judging the success of habitat actions should be based on the accomplishment of specific program tasks rather than the achievement of specific fish survival or abundance criteria.

D. Regulatory Assurances.

Successful watershed programs permit local landowners to develop trust in the government participants and a sense of ownership in the process. This can only be achieved if the federal agencies are willing to grant some level of autonomy to local actors. There must be a regulatory "truce" while a watershed council or similar body addresses problems. If landowners are afraid that they will be charged with ESA Section 9 or Clean Water Act violations, they will not step forward to help solve habitat problems.

One example of a regulatory "snare" in which a non-federal entity may get caught absent proper regulatory assurances occurs when habitat with no listed species becomes reconnected to habitat occupied by listed species. A private landowner has no incentive to improve habitat conditions on their land in a way that introduces listed species—and the accompanying restrictions and possible enforcement actions of the Endangered Species Act—absent some kind of "safe harbor" assurances.

NMFS should prescribe temporary "safe harbors" from enforcement while implementation gets underway and then firm up those assurances once implementation is completed in accordance with appropriate programmatic standards. Possible mechanisms for these regulatory assurances include: (1) ESA Section 4(d) coverage during implementation phase; (2) incidental take coverage under ESA Section 7 with federal nexus through funding or under ESA Section 10; and (3) memorandum of understanding or other negotiated arrangement.

E. Estuary Measures.

The estuary environment is vital to the survival and recovery of all Columbia River salmon and steelhead, including ESA-listed Snake River fish. The estuary provides an important

transition between fresh and saltwater. Year-class strength is often determined during estuary and early ocean residence. Estuarine conditions are likely to affect all species, races and stocks of Columbia Basin salmon and steelhead, and thus must be a primary focus of conservation and recovery efforts.

Avian predators in the estuary have increased dramatically during the past two decades. In general, predation rates average 10-15 percent or more annually. Caspian Terns are the primary predators, although cormorants and gulls also contribute. The increase in Caspian Terns is largely due to the birds' use of artificial islands for nesting that were created from dredge spoils by the Corps. Efforts to reduce avian predation and relocate birds out of the estuary have been slow to develop and implement. Current research information is adequate to make management decisions and act quickly to reduce avian predation on migrating smolts.

Recommended RPA measures:

- Reduce Caspian terns, double-breasted cormorants and gulls to mid-1980s levels by 2002. As listed fish stocks are recovered, reassess appropriate balance of fish and birds.

- Ensure no nesting occurs near the salt/freshwater interface by lowering all artificially created dredge-spoil islands to below high-tide levels.

- Assist natural revegetation of all islands not located in the salt/freshwater interface.

- Actively harass birds foraging on smolts near the salt/freshwater transition zone.

- Identify and create alternative nesting sites outside of the lower Columbia River and estuary. Encourage birds to utilize these nesting sites.

- Require upland disposal of all future dredge spoils.

- Restore Columbia River estuary habitat and ecosystem functions. For example, restore natural connectivity of estuary wetlands and tidal zones by removing dikes created by dredge spoils; do not allow shipping channel dredging to further diminish natural estuary habitats.

F. Recovery Planning.

As NMFS moves forward to develop recovery plans, the agency should rely on existing processes and institutions. NMFS rightly acknowledges that the planning process could provide the necessary organization and include the stakeholders in the interior Columbia River Basin in a way that would enable the federal agency to complete its recovery planning in an expeditious fashion. Indeed, Governor Kempthorne has expressed this concern to the chairs of the Northwest Power Planning Council and Columbia Basin Fish and Wildlife Authority that the state be empowered to determine priorities in the Council's sub-basin planning process as well as use of

its existing state agencies to accomplish the appropriate phases in sub-basin planning. Attached as Part IV, Exhibit 1.

Idaho believes the Technical Recovery Teams as conceptualized by NMFS would be successful provided that there is an adequate balance of membership of the Teams which include the states, the tribes, and other qualified stakeholders to the process. Also, Idaho supports a regionalized approach which divides the Teams into the upper Columbia River region, the mid-Columbia River Region, and the Snake River Basin region.

II. Harvest Measures (Section 9.6.3)

A. Harvest Impacts Remain Substantial, Particularly For Snake River Fall Chinook.

The BiOp's overview of harvest measures states: "The potential benefits of additional reductions in harvest impacts for those ESUs still affected by fishing are limited, even if fishing directed at non-listed stocks was eliminated altogether." This statement is not correct. The BiOp should be revised to state the actual harvest rates currently allowed under NMFS' biological opinions. For Snake River fall chinook, the permissible in-river harvest rate on upriver bright fall chinook is 31.29 percent. When added to ocean harvest, the cumulative harvest rate on upriver bright fall chinook approaches 50 percent. NMFS allows a harvest rate of approximately 19 percent on Snake River B-run steelhead. Snake River spring chinook were subject to a 9 percent harvest rate in 2000. Contrary to the BiOp, these harvest rates are not insubstantial. In fact, the mortality associated with current Snake River chinook harvest regimes exceeds the benefits that the BiOp attributes to the RPA by a substantial margin. *Compare* Table 6.3-2 with Table 9.7-6 (Snake River spring chinook) and 9.7-10 (Snake River fall chinook).

This does not mean that Idaho suggests that all harvest should be eliminated. We recognize that certain fisheries have been substantially curtailed and that, particularly for spring and summer chinook, further reductions will produce great hardship for fishing dependent communities. Nevertheless, NMFS' salmon recovery planning has reached a point where the agency is considering hydropower and habitat measures that are extraordinarily burdensome and offer very small biological benefits. Harvest remains one arena in which some meaningful progress can be made, particularly for Snake River fall chinook. The BiOp's overview of harvest measures makes it appear that NMFS is trying to minimize the true impact of harvest.

Idaho intends to provide NMFS additional specific recommendations regarding harvest management during upcoming consultations.

B. The BiOp Correctly Emphasizes Selective Fisheries.

Harvest of Columbia Basin salmon and steelhead can remain a legitimate and economically important practice even after the listing of nearly all of the wild stocks in the basin. This is true, however, only if fish managers take more seriously the need to reform existing harvest practices to protect weak stocks. Several RPA measures correctly emphasize the need to

develop new harvest practices that permit selective harvest of abundant stocks while protecting the listed wild stocks. Idaho strongly supports this emphasis.

Harvest reform efforts to date have been disappointing. Although harvest rates have declined significantly since the late 1980s, this has largely been in response to a decline in aggregate run sizes. With one notable exception, we have not seen any significant shift toward greater selectivity in ocean and in-river fisheries. That exception is the recreational fishery. By marking all hatchery-origin fish and requiring anglers to release all unmarked (wild) fish, fisheries managers have been able to reduce the impact of recreational fisheries to minimal levels. The recreational fishery is able to provide substantial economic benefits to the region without jeopardizing the listed runs.

Selective fishing techniques will be successful only if the federal agencies are willing to show leadership and use innovative approaches. The BiOp correctly recognizes that selective fishing techniques will be adopted only if they are part of a broader package of incentives. Idaho encourages NMFS and the action agencies to emphasize measure 9.6.3.4, which calls on the action agencies to work with the fish managers to implement innovative harvest strategies. These strategies may include buying out and retiring commercial fishing licenses and permits (linked to harvest reductions), price supports, and other economic incentive to enhance fisheries values.

Idaho recognizes that selective fishing techniques will not benefit all stocks, at least in the short-term. For instance, the listed Snake River fall chinook and the abundant fall chinook of the Hanford Reach are both naturally spawning stocks that are mostly unmarked. There are no methods currently available for distinguishing between the two stocks. While it is possible to reduce harvest rates on Snake River fall chinook by moving a portion of the harvest above the confluence of the Snake and Columbia rivers, this action would not eliminate harvest. Therefore, it is still necessary for NMFS to determine harvest levels based on the biological needs of the listed species; these needs may require lower harvest rates than are currently permitted.

C. Harvesters Must Receive Credit For Survival Improvements Due To Harvest Restrictions And Selective Fishing.

Measure 9.6.3.5 calls upon the action agencies to develop plans and strategies for crediting reductions in impacts on listed fish toward the FCRPS mitigation. This measure provokes understandable concerns among fishing interests because it suggests that their sacrifice—in terms of decreased harvest and economic activity—will be credited to the hydropower system and that they will be subject to continuing harvest restrictions. While Idaho understands that the action agencies should receive credit for funding for harvest-related measures, it is essential that harvesters also get credit for the resulting improvements in fish survival.

III. Hatcheries (Section 9.6.4)

Idaho agrees that hatcheries must be operated to minimize adverse genetic and ecological effects on natural populations. The BiOp at page 9-132 correctly describes the general considerations that should be taken into account as hatchery practices are adjusted to ensure consistency with recovery of listed salmon and steelhead stocks.

Idaho feels that it is proper for BPA to provide funds to meet the substantial implementation costs of new hatchery practices and planning requirements at Lower Snake River Compensation Plan (LSRCP) hatcheries. BPA funding is appropriate because the hatcheries were authorized by Congress to mitigate for the impacts of the federal hydropower projects. The new hatchery-related planning actions and measures discussed in the BiOp, the Northwest Power Planning Council's Artificial Production Review, and NMFS' biological opinions on hatchery production involve will require funding considerably beyond current budget levels. A commitment from BPA to provide this additional funding will be essential if new hatchery practices are to be implemented on a timely basis.

Although we agree with the general objective of ensuring that artificial production programs are consistent with ESA objectives, we are concerned that the BiOp simply assumes that hatcheries have significant adverse effects on naturally spawning populations. The statement at page 9-119 that "hatchery programs have also contributed to the decline of natural-origin fish populations now listed as threatened and endangered under ESA" may be viewed by NMFS and others as a broad-based indictment of current hatchery practices. Yet, there is little evidence to support the notion that hatchery production necessarily has significant adverse effects on wild stocks. The research called for at Section 9.6.5.4 is important because it should permit NMFS and fishery managers to assess both the impacts of current hatchery programs and the effectiveness of hatchery reform measures. Because the reforms that have been developed to date remain largely untested, the BiOp correctly calls for research and field-testing to determine risks and benefits of new hatchery practices.

Idaho is also concerned that NMFS has not evaluated the feasibility and schedule for both the "safety-net" program described at Section 9.6.4.2 or the general implementation of hatchery genetic management plans ("HGMPs"). These efforts require a great deal of planning, study, and capital investment. They cannot be implemented on a timely basis under current budget constraints. Under the current conditions, Idaho's best guess is that implementation of these efforts will take two to five years. Even if full funding were available immediately, implementation would still have to await completion of complex planning and permit processes.

The BiOp suggests that supplementation program measures are intended to provide short-term benefits to the listed species (within 2-to-4 generations, which equates to 8-to-24 years for 2-ocean returns). NMFS should recognize that supplementation does not offer significant short-term survival or productivity improvements for the listed stocks. Therefore, in assessing the risks of supplementation measures, NMFS should evaluate whether the risks of long-term hatchery production for supplementation purposes (domestication, inbreeding, outbreeding depression, swamping) are consistent with retaining the fitness of multiple, naturally producing populations over a period of two decades or more.

Sections 9.6.4.1 and 9.6.4.3, Page 9-120, Hatchery Reforms: The BiOp calls for the initiation of programmatic, basinwide "reforms" without any significant body of scientific information regarding whether reforms are really needed or whether they will improve the survival and productivity of wild stocks. While certain new hatchery practices would certainly be beneficial in particular instances, current research does not support a "one-size-fits-all" approach to hatchery reform. We recommend that NMFS adopt an approach that permits case-by-case development of new hatchery practices based on particular artificial production programs and the conditions in particular watersheds.

The BiOp also fails to address adequately the biological or implementation feasibility of the hatchery measures that are in addition to measures that are currently underway. The BiOp suggests that additional measures could occur in the short-term. Yet, for supplementation hatcheries in the Snake River Basin, practically all of the "reforms" are already being implemented and have been integrated into agencies' management direction for almost a decade. Truly "new" measures will take additional time to implement. And, as noted previously, there is no quantified survival improvement that can be attributed to these measures.

The Artificial Production Review has been oriented to development of goals and performance standards. NMFS gives the wrong impression that it dictates on-the-ground "reforms" ready for implementation. The fact that the Artificial Production Review has not yet been translated into specific management actions adds significantly to the time expected for future improvement as actual implementation measures are developed.

Hatchery monitoring and evaluation (also addressed in 9.6.5.4) should include core elements for basin-wide comparison, but more intensive work should be assessed on a case-by-case basis. A relatively isolated mitigation hatchery will not have the same needs as an integrated supplementation hatchery.

Section 9.6.4.2, Page 9-123, Artificial Production Safety-Net Program: NMFS should address in greater detail the implications of the concept of "safety-net" artificial propagation for Snake River stocks. The need for "safety-net" programs is tied to habitat improvement. NMFS characterizes them as "short-term" ways to boost the population until necessary habitat improvement becomes effective. However, elsewhere, NMFS generally acknowledges that many habitat improvements may take years to effect survival improvement. Furthermore, the BiOp does not point the way to significant near-term improvements for Snake River populations inhabiting high quality habitat. For populations in these areas, there will be little to be gained from in-basin habitat actions, and there are no hatchery practices to "reform." Hence, the BiOp's off-site mitigation provisions contain no real program for native, naturally reproducing chinook in the areas with high quality habitat and no current hatchery intervention.

The BiOp's assumption that artificial production can provide a short-term boost for the listed stocks is not borne out by available research. Current Idaho Supplementation Studies developed by IDFG control the proportion of natural and hatchery fish spawning in the natural environment to avoid swamping and potential deleterious genetic effects that may lead to decline in fitness in the natural environment. NMFS agrees this is appropriate over the long-term. The NMFS "safety-net" program idea clearly puts many more hatchery fish into the environment

than naturally produced fish, which may only be appropriate if very short term. However, if the naturally reproducing population is not consistently replacing itself, then fish managers have no sound options. In such a situation the subbasin or watershed has to be continually overloaded with hatchery fish (*i.e.*, swamping) just to keep some fish spawning. This program would likely have to continue over a long-term period, increasing potential of fitness alteration due to genetic interactions identified in NMFS Artificial Propagation Policy. These concerns reinforce the need for caution before intervening in natural production areas.

As stated before, Idaho agrees that HGMPs and benefit-risk assessments should be developed prior to new artificial interventions. However, the programs identified in the BiOp for spring/summer chinook, with the exception of Valley Creek, are all ones that are already in progress. This begs the question of how NMFS determined which populations should be covered with a safety-net program. It would be more appropriate to display the current programs in place, identified as "supplementation" or "safety-net," and then either identify additional at-risk populations for consideration, or admit that more work is needed to determine which populations are at higher risk of extinction. The Idaho Department of Fish and Game is already conducting a population viability analysis for chinook and intends to use this information to guide future artificial intervention recommendations.

We fully agree with the factors for additional interventions set forth at the top of page 9-124. This information should be at the front of the section and would appropriately set the stage for how new "safety-net" programs should be considered.

Idaho intends to provide NMFS additional specific recommendations regarding harvest management during upcoming consultations.

CONCLUSION

Idaho appreciates NMFS' efforts to provide the State with an opportunity to comment on the BiOp. We hope that there will be opportunities for continued discussion among the federal agencies and the states and specifically invite NMFS meet with Idaho representatives in the coming months to discuss the progress of the BiOp.

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